What is claimed is:

1. A method of forming metal spheres, comprising:

ejecting a precisely measured droplet of molten metal from a molten metal mass;

buffering the molten metal droplet to reduce the internal kinetic energy of the droplet without solidifying the droplet; and

cooling the buffered droplet until the droplet solidifies in the form of a metal sphere.

2. The method of claim 1, further comprising collecting the metal sphere.

3. The method of claim 1, wherein ejecting a droplet of molten metal includes

disposing the molten metal mass in a fixed volume;

providing an aperture as an outlet to the fixed volume;

striking the molten metal mass with an impulse force; and

allowing the impulse force to propagate through the molten metal mass to cause a droplet of the molten metal mass to be ejected through the aperture.

4. The method of claim 3, wherein the droplet is ejected in a generally upward direction.

5. The method of claim 1, wherein buffering the molten metal droplet includes cooling the droplet to an extent that is less than is necessary to cause the droplet to solidify.

6. The method of claim 1, wherein buffering the molten metal droplet includes allowing internal kinetic energy of the droplet to diminish.

7. The method of claim 4, wherein buffering the molten metal droplet includes allowing the ejected droplet to ascend to a maximum height, and then allowing the droplet to descend through a medium having a temperature that is controlled such that the droplet is cooled but not allowed to solidify.

8. The method of claim 1, wherein cooling the buffered droplet includes allowing the droplet to descend through a medium having a temperature that is controlled to cool the droplet.

9. The method of claim 2, wherein collecting the metal sphere includes immersing the metal sphere in a liquid, and separating the metal sphere from the liquid.

10. The method of claim 9, wherein separating the metal sphere from the liquid includes depositing the liquid and the metal sphere in a container having drainage holes that are smaller than the metal sphere, and draining the liquid from the container through the drainage holes.

11. The method of claim 9, wherein

the liquid is contained in a reservoir; and

the metal sphere is drawn upward with some of the liquid until the metal sphere reaches a level that is higher than the level of the liquid in the reservoir.

12. The method of claim 11, wherein separating the metal sphere from the liquid includes allowing the drawn liquid to flow back downward to the reservoir.

13. An apparatus for fabricating metal spheres, comprising:

a droplet generator that generates a droplet from a molten metal mass;

a buffering chamber that receives the droplet from the droplet generator, and diminishes internal kinetic energy of the droplet without solidifying the droplet; and

a cooling drum that receives the droplet from the buffering chamber, and cools the droplet to the extent that the droplet solidifies into a metal sphere.

14. The apparatus of claim 13, further comprising a collector arrangement that receives the metal spheres from the cooling drum and makes the metal sphere available for collection.

15. The apparatus of claim 13, wherein the droplet generator includes

a receptacle in which the molten metal mass is contained, wherein the receptacle includes a plurality of walls and a tube;

an aperture through a first wall of the plurality of walls of the receptacle; and

a piston disposed within the tube and forming a substantially fluid-tight seal with the tube;

wherein reciprocating motion of the piston within the tube changes pressure of the molten metal mass.

16. The apparatus of claim 15, wherein an impulse force imparted by the piston on the molten metal mass within the receptacle causes a portion of the molten metal mass to eject through the aperture as a droplet.

17. The apparatus of claim 16, wherein

the droplet generator further includes a feed tube extending outward from the aperture; and

the piston abuts the first wall at an end of the reciprocating motion such that the piston closes off the aperture from the inside of the receptacle and forces a droplet of molten metal out of the feed tube.

18. The apparatus of claim 16, wherein the droplet generator is positioned such that the droplet is ejected in an upward trajectory.

19. The apparatus of claim 18, wherein the buffering chamber includes an enclosed volume having a height sufficient to allow the ejected droplet to reach a maximum unimpeded height in the upward trajectory.

20. The apparatus of claim 13, wherein the buffering chamber includes

an enclosed volume containing a gaseous medium; and

a temperature control system that controls the temperature of the gaseous medium.

21. The apparatus of claim 19, wherein the enclosed volume includes a bottom end having an opening for receiving the droplet as it descends after reaching the maximum unimpeded height in the upward trajectory.

22. The apparatus of claim 13, wherein the cooling drum includes

a first cylinder, having an open top end and an open bottom end and surrounding a gaseous medium;

a second cylinder, coaxial with the first cylinder and surrounding the first cylinder, and having a top end that is closed around the top end of the first cylinder, and a bottom end that is closed around the bottom end of the first cylinder, forming a reservoir between the first and second cylinders; and

a system for controlling the temperature of the gaseous medium.

23. The apparatus of claim 22, wherein the system for controlling the temperature of the gaseous medium includes a first fluid inlet, disposed in an outer wall of the second cylinder, that receives a first fluid to be stored in the reservoir.

24. The apparatus of claim 23, wherein the system for controlling the temperature of the gaseous medium includes a second fluid inlet, disposed in the outer wall of the

second cylinder, for receiving a second fluid to be dispersed within the first fluid in the reservoir.

25. The apparatus of claim 24, wherein the system for controlling the temperature of the gaseous medium includes a dispersal tube, connected to the second fluid inlet and surrounding the first cylinder within the reservoir, that receives the second fluid through the second fluid inlet, wherein the dispersal tube includes a plurality of holes through which the second fluid is dispersed within the first fluid.

26. The apparatus of claim 25, wherein the dispersal tube is a circular closed loop for receiving the second fluid from the second fluid inlet and for dispersing the second fluid into the first fluid, within the reservoir around the first cylinder, through the plurality of holes.

27. The apparatus of claim 13, further comprising a gas screen disposed between the buffering chamber and the cooling drum, which provides temperature separation between respective media in the buffering chamber and the cooling drum.

28. The apparatus of claim 27, wherein the gas screen includes

a hollow disk having a top face with an opening for receiving the droplet from the buffering chamber, a bottom face with an opening for providing the droplet to the cooling drum, and circular outer wall connecting the top and bottom faces; and

a fan, disposed within the hollow disk and positioned such that it blows a fluid medium within the hollow disk in a direction that is tangential to the outer wall.

29. The apparatus of claim 14, wherein the collector arrangement includes

a reservoir that holds a liquid into which the metal sphere falls after passing through the cooling drum;

a pipe, connected to a bottom end of the reservoir and in fluid communication with the reservoir, that receives the metal sphere and a volume of the liquid from the reservoir; and

a delivery system that delivers the metal sphere to a collection basket.

30. The apparatus of claim 29, wherein the reservoir has lower sides that slope toward an opening in the pipe.

31. The apparatus of claim 29, wherein the pipe is an elbow joint having a bend in which the metal sphere settles.

32. The apparatus of claim 29, wherein

the delivery system is a pump that pumps the metal sphere and the volume of the liquid to the collection basket; and

the collection basket is located at a level that is higher than a level of the liquid in the reservoir.

33. The apparatus of claim 32, wherein

the collector arrangement further includes a holding tank in which the collection basket is disposed; and

the collection basket has openings that are smaller than the metal sphere, through which the volume of liquid pass.

34. The apparatus of claim 33, wherein the collector arrangement includes a return channel, in fluid communication between the holding tank and the reservoir, by which liquid passing through the openings in the collection basket is returned to the reservoir.

35. The apparatus of claim 14, wherein the cooling drum is a plurality of cooling drums, including

a first cooling drum, disposed to receive the droplet from the buffering chamber; and

a last cooling drum, disposed to provide the metal sphere to the collector arrangement.